

WHAT IS CLAIMED IS:

1. An apparatus for supplying crystalline materials in the Czochralski method which is equipped with an inner vessel having an opening portion at the lower part or bottom thereof, which is to be charged with a granular solid material, an outer vessel containing the inner vessel with the function of sliding movement therein and thus closing said opening portion, and pull-up means for suspending the inner vessel and outer vessel in a manner causing them to ascend or descend,

wherein said opening portion is opened through a sliding motion of the inner vessel or outer vessel for additional charging or recharging of the solid material into the molten material in the crucible.

2. An apparatus for supplying crystalline materials in the Czochralski method as claimed in Claim 1, wherein the inner vessel is equipped with a clamping member for stopping the ascending or descending thereof and the opening portion of the inner vessel is opened through a sliding motion of the outer vessel.

3. An apparatus for supplying crystalline materials in the Czochralski method as claimed in Claim 1, wherein the outer vessel is equipped with a clamping member for stopping the ascending or descending thereof and the opening portion of the inner vessel is opened through a sliding motion of the inner vessel.

4. An apparatus for supplying crystalline materials in the Czochralski method as claimed in Claim 1, wherein the material constituting the inner vessel and outer vessel is quartz, silicon carbide (SiC), or carbon coated with SiC.

5. An apparatus for supplying crystalline materials in the Czochralski

method as claimed in Claim 2, wherein the material constituting the inner vessel and outer vessel is quartz, silicon carbide (SiC), or carbon coated with SiC.

6. An apparatus for supplying crystalline materials in the Czochralski method as claimed in Claim 3, wherein the material constituting the inner vessel and outer vessel is quartz, silicon carbide (SiC), or carbon coated with SiC.

7. A method of supplying crystalline materials in the Czochralski method which comprises:

the step of inserting an inner vessel having an opening portion at the lower part or bottom thereof with the function of sliding movement into an outer vessel and charging the inner vessel with a granular solid material while said opening portion is closed,

the step of suspending the inner vessel and outer vessel and causing them to descend until above a crucible located in the center of a growing furnace,

the step of stopping the descending of either of the inner vessel and outer vessel to thereby allow either of the inner vessel and outer vessel to further slide, and

the step of opening the above-mentioned opening portion through the sliding motion of the inner vessel or outer vessel and thereby additionally charging or recharging the solid material into the molten material in the crucible.

8. A method of supplying crystalline materials in the Czochralski method as claimed in Claim 7, wherein the inner vessel is equipped with a clamping member for stopping the descending thereof so that the opening

portion of the inner vessel may be opened through a sliding motion of the outer vessel to allow additional charging or recharging of the solid material into the molten material in the crucible.

9. A method of supplying crystalline materials in the Czochralski method as claimed in Claim 7, wherein the outer vessel is equipped with a clamping member for stopping the descending thereof so that the opening portion of the inner vessel may be opened through a sliding motion of the inner vessel to allow additional charging or recharging of the solid material into the molten material in the crucible.

10. A method of supplying crystalline materials in the Czochralski method as claimed in Claim 7, wherein the granular solid material to be charged into the inner vessel to constitute a lower layer portion close to the opening portion is a fine-granule material with a grain size of not larger than 25 mm.

11. A method of supplying crystalline materials in the Czochralski method as claimed in Claim 7, wherein the solid material is additionally charged or recharged into the molten material in the crucible while the crucible is rotated.

12. A method of supplying crystalline materials in the Czochralski method as claimed in Claim 8, wherein the solid material is additionally charged or recharged into the molten material in the crucible while the crucible is rotated.

13. A method of supplying crystalline materials in the Czochralski method as claimed in Claim 9, wherein the solid material is additionally charged or recharged into the molten material in the crucible while the crucible is rotated.